Read Me First

hp Storage Works
File System Extender

Product Version: 3.1

Part Number: T3648–96001

In this guide:

What Is HP StorageWorks File System Extender (FSE)?

HP File System Extender (FSE) is software for the management and storage of large quantities of file system stored data. The key feature is automatic file migration and recall between primary (production) disk and secondary (migration) media based on policies created to reflect the business needs for that data. FSE has a flexible client server architecture and a management console (GUI).

■ **FSE server** runs on the machine connected to the migration media, and running:

— Partition Manager-managing migration, recall, deletion, and recovery jobs

— Resource Manager-managing the allocation of data resources such as drives and media

— Management Interface-handling user requests and managing FSE administration jobs

One FSE server can serve multiple FSE clients.

■ **FSE clients** either run on the same machine as the FSE server (consolidated implementation), on separate machines (distributed implementation), or both (mixed implementation). Each FSE client manages one or more migrating file systems used to store online files and file metadata (such as names, attributes and permissions) of a FSE partition.

■ **FSE Management Console** is a client-server application. The graphical component is the client that can run remotely or locally to the server. The server runs on the machine running the FSE server. A subset of the monitoring, administration and configuration commands, accessed via the CLI, are executable via the Management Console client.

For best performance, FSE needs to be tuned to your environment and requirements. See these top-level tasks listed on page 5:

■ Preparation for installation

■ Configuration

You may want to involve HP CI (Consulting and Integration) engineers to assist during the definition/design phase of the data management solution. FSE installation and initial configuration will be undertaken in conjunction with HP.

System Requirements

SUSE LINUX Enterprise Server

SUSE LINUX Enterprise Server 8 Service Pack 3 (SLES8, SP 3, *kernel:* 2.4.21-138-default, 2.4.21-138-smp or 2.4.21-138-smp4G) must be installed on all FSE system components running on SLES 8.

Red Hat Enterprise Linux

All Red Hat Enterprise Linux 3 (RHEL 3, *kernel:* 2.4.21-20.EL, 2.3.21-20.ELhugemem or 2.4.21-20.ELsmp) that will become FSE system components must be upgraded to RHEL 3 ES Update 3.

Required Packages for SUSE LINUX Enterprise Server 8 (SLES 8)

Later versions are acceptable:

Package	FSE Client	FSE Server	Consolidated Implementation
Extended Attributes utilities `attr-2.4.2-55.i586.rpm`	✔		✔
Logical Volume Manager package `lvm-1.0.5-51.i586.rpm`	✔	✔	✔
E2fsprogs tools `e2fsprogs-1.28-30.i586.rpm`	✔	✔	✔
libgcc C library `libgcc-3.2.2-38.i586.rpm`	✔	✔	✔
libstdc++ C++ library `libstdc++-3.2.2-38.i586.rpm`	✔	✔	✔
glibc C library `glibc-2.2.5-213.i586.rpm`	✔	✔	✔
glibc locale C library `glibc-locale-2.2.5-213.i586.rpm`	✔	✔	✔
Firebird SuperServer `FirebirdSS-1.0.3.972-0.64IO.i386.rpm` sourceforge.net/projects/firebird/		✔	✔

Package	FSE Client	FSE Server	Consolidated Implementation
Python interpreter `python-2.2.1-68.i586.rpm` www.python.org	✓	✓	✓

Upgraded Samba package with offline file support
`samba-2.2.8a-133HSM.i386.rpm`
`samba-client-2.2.8a-133HSM.i386.rpm`
	✓		✓

tar archiving package `tar-1.13.25-46`	✓	✓	✓

For more details, and how to check if you have the required versions installed, see Chapter 3 in the *FSE Installation Guide*.

Required Packages for Red Hat Enterprise Linux 3 (RHEL 3)

Later versions are acceptable:

Package	FSE Client	FSE Server	Consolidated Implementation

Extended Attributes utilities
`attr-2.2.0-1.i386.rpm`
`libattr-2.2.0-1.i386.rpm`
	✓		✓

Logical Volume Manager package `lvm-1.0.8-5.i386.rpm`	✓	✓	✓
E2fsprogs tools `e2fsprogs-1.32-15.i386.rpm`	✓	✓	✓
libgcc C library `libgcc-3.2.3-42.i386.rpm`	✓	✓	✓
libstdc++ C++ library `libstdc++-3.2.3-42.i386.rpm`	✓	✓	✓
glibc C library `glibc-2.3.2-95.20.i386.rpm`	✓	✓	✓
Firebird SuperServer `FirebirdSS-1.0.3.972-0.64IO.i386.rpm` sourceforge.net/projects/firebird/		✓	✓

Package	FSE Client	FSE Server	Consolidated Implementation
Python interpreter `python-2.2.3-5.i386.rpm` www.python.org	✓	✓	✓

Upgraded Samba package with offline file support
`samba-3.0.6-2.3E.HSM.i386.rpm`
`samba-client-3.0.6-2.3E.HSM.i386.rpm`
	✓		✓

tar archiving package `tar-1.13.25-13`	✓	✓	✓

For more details, and how to check if you have the required versions installed, see Chapter 3 in the *FSE Installation Guide*.

Required Packages for Windows

Later versions are acceptable:

Package	FSE Client	FSE Server/ Consolidated Implementation
Windows 2000 only: StorageCraft VolumeSnapshot 1.1.57 *(license needed)*	✓	✓
Firebird SuperServer `Firebird-1.0.3.972-Win32.exe` sourceforge.net/projects/firebird/		✓
Python 2.3.x *(latest version recommended)* www.python.org	✓	✓
Python Win32All 2.3.201 `pywin32-201.win32-py2.3.exe` sourceforge.net/projects/pywin32/	✓	✓

For more details, see Chapter 3 in the *FSE Installation Guide*.

Hardware Requirements

See the *FSE Software Release Notes*.

Top-Level Tasks

Where to find details:

- Preparation for installation—*Installation Guide*, Chapter 1:
    — Estimating storage requirements
    — Organizing file systems' layout
    — Preparing file systems

- Installing FSE—*Installation Guide*, Chapter 2
  How to use installation scripts—*Installation Guide*, Appendix A.
  NOTE: After installation, you need to configure FSE resources (disk media, tape libraries, FSE systems) and migration policies.

- Configuring FSE—*User's Guide*, Chapter 2

- Managing media—*User's Guide*, Chapter 3

- Maintaining FSE—*User's Guide*, Chapter 5

- Troubleshooting:
    — during installation—*Installation Guide*, Chapter 8 and *Release Notes*
    — during use—*User's Guide*, Chapter 7

CD Content

The FSE product CD contains the following:

- Third party product required by FSE

- FSE software for SLES 8 operating systems

- FSE software for Red Hat Enterprise Linux 3 operating systems

- FSE software for Windows 2000/2003 operating systems

- Documentation in electronic format (PDF files)

CD Directory Structure

The directory structure on the FSE product CD is as follows:

`\rhel3\ia32`	FSE RHEL8 installation sources
`\rhel3\ia32\3Party`	Required third party products
`\rhel3\ia32\fse`	FSE installation files
`\rhel3\ia32\GUI`	Installation files for the Graphical User Interface
`\rhel3\ia32\install`	Installation scripts
`\sles8\ia32`	FSE SLES8 installation sources

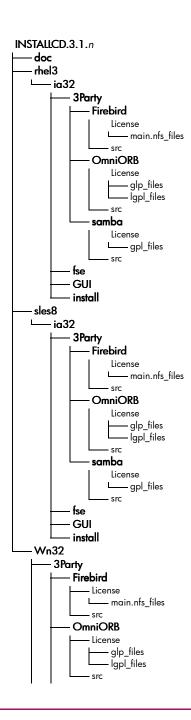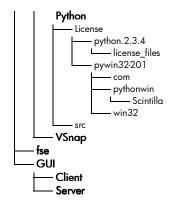|	
`\sles8\ia32\3Party`	Required third party products
`\sles8\ia32\fse`	FSE installation files
`\sles8\ia32\GUI`	Installation files for the Graphical User Interface
`\sles8\ia32\install`	Installation scripts
`\Win32`	FSE Windows 2000 installation sources
`\Win32\3Party`	Required third party products
`\Win32\fse`	FSE installation files
`\Win32\GUI`	Installation files for the Graphical User Interface

CD Layout

```
INSTALLCD.3.1.n
├── doc
├── rhel3
│   └── ia32
│       ├── 3Party
│       │   ├── Firebird
│       │   │   ├── License
│       │   │   │   └── main.nfs_files
│       │   │   └── src
│       │   ├── OmniORB
│       │   │   ├── License
│       │   │   │   ├── glp_files
│       │   │   │   └── lgpl_files
│       │   │   └── src
│       │   └── samba
│       │       ├── License
│       │       │   └── gpl_files
│       │       └── src
│       ├── fse
│       ├── GUI
│       └── install
├── sles8
│   └── ia32
│       ├── 3Party
│       │   ├── Firebird
│       │   │   ├── License
│       │   │   │   └── main.nfs_files
│       │   │   └── src
│       │   ├── OmniORB
│       │   │   ├── License
│       │   │   │   ├── glp_files
│       │   │   │   └── lgpl_files
│       │   │   └── src
│       │   └── samba
│       │       ├── License
│       │       │   └── gpl_files
│       │       └── src
│       ├── fse
│       ├── GUI
│       └── install
└── Wn32
    └── 3Party
        ├── Firebird
        │   ├── License
        │   │   └── main.nfs_files
        │   └── src
        └── OmniORB
            ├── License
            │   ├── glp_files
            │   └── lgpl_files
            └── src
```

```
                    Python
                    ├── license
                    │       ├── python.2.3.4
                    │       └── license_files
                    │       └── pywin32-201
                    │                ├── com
                    │                ├── pythonwin
                    │                │       └── Scintilla
                    │                └── win32
                    └── src
             VSnap
      fse
      GUI
          ├── Client
          └── Server
```

Documentation

- *FSE Installation Guide* (`InstG.pdf` on Installation CD)

  For system administrators. Provides information to help:
  — Prepare the environment before installing the software
  — Install the software
  — Verify successful installation and troubleshoot problems

- *FSE User's Guide* (`UserG.pdf` on Installation CD)

  Describes basic concepts and typical tasks when using FSE. Also contains details of FSE commands for command-line use (Appendix B).

- *FSE Management Console Reference Guide* (`GUIG.pdf` on Installation CD)

  How to use the add-on FSE Management Console application for monitoring and administration tasks.

- *FSE Software Release Notes* (`RelNo.pdf` on Installation CD)
  — Required and supported hardware
  — Last-minute changes
  — New features
  — Recommendations
  — Limitations
  — Known issues and workarounds

FSE commands, their functionality and syntax are explained in the FSE command-line reference, installed as part of FSE and available on Linux as UNIX man pages, and on Windows as Windows help. They are also described in Appendix B of the *FSE User's Guide*.

Licensing

There are both per machine and capacity-based licenses for FSE.

- For every machine that runs an FSE client, you need an FSE client license appropriate to the operating system.

- For every machine that runs the FSE server, you need a base license appropriate to the operating system. The base license includes a license to migrate 1 TB to secondary storage managed by the FSE server.

- To migrate more than 1 TB to the secondary storage, you need additional FSE server capacity licenses. These are available in 1 TB increments. The migrated capacity is the sum of all capacity migrated to the secondary storage from all associated FSE clients, including all copies where two or more copies of migrated files are configured, and all versions of modified migrated files.

- To upgrade the FSE client-managed file system to WORM you need a capacity-based license. This is available in 1 TB increments. The capacity for this WORM license is based on the physical capacity occupied by the upgraded FSE file system on the production disk.

For Support and More Information

Support

- Technical support: http://www.hp.com/support
- Contact an HP authorized service provider

More Information

- HP Information Lifecycle Management web site: http://www.hp.com/go/ilm.
- HP Authorized Resellers. For the name of your nearest reseller:
  — In the United States, call 1-800-345-1518
  — In Canada, call 1-800-263-5868
  — Elsewhere, see the HP web site (http://www.hp.com) for locations and telephone numbers.